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EXAMINER	
MARSH, OLIVIA MARIE	
ART UNIT	**PAPER NUMBER**
2686	

DATE MAILED: 12/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/731,653	GOLDBERG, STEVEN JEFFREY	
	Examiner	Art Unit	
	Olivia Marsh	2686	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 November 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-10, 16-21, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johan *et al* (U.S. 2005/0118959 A1) in view of Hill (U.S. 6925301 B2).

As to **claim 1**, Johan discloses invention generally relates to modulation scheme management in radio communications systems, and in particular to a mobile-unit-assisted modulation scheme management in such systems (paragraph 1). Johan also discloses invention involves a mobile-unit-assisted generation of modulation-scheme-dependent link quality data used as a basis for selection of a modulation to use on data transmitted to the mobile unit (paragraph 13). Johan also discloses the mobile unit could be equipped with a link quality enhancing algorithm, reading on claimed "performance enhancement," that is operable on data modulated using a specific modulation scheme, or a specific subset of the available schemes (paragraph 19). Johan also discloses this enhancing algorithm will then improve the link quality experienced by the mobile unit when data is modulated with the specific modulation scheme(s) but not with other schemes (paragraph 19). Johan also discloses the mobile unit preferably determines the performance gain (quality enhancement) due to this algorithm (paragraph 19), reading claimed "a method for indicating performance enhancements in a wireless transmit/receive unit (WTRU) to a user in a wireless communication system."

Johan also discloses this mobile unit 100 embodiment has access to a link quality enhancing algorithm or unit 170 that is applicable for data modulated using a subset of the available modulation schemes (paragraph 87). Johan also discloses an enhancing algorithm 170 allows usage of a given modulation scheme even under radio conditions that otherwise would not be possible due to a too low link quality (paragraph 87). Johan also discloses the algorithm 170 is able to enhance the link quality on the communications link (paragraph 87), reading on claimed "wherein a performance enhancement improves existing performance of the WTRU."

Johan also discloses the enhancement algorithm 170 is typically activated in some bursts and deactivated in other bursts, reading on claimed "operating a radio link to the WTRU with a performance enhancement active, operating a radio link to the WTRU with the performance enhancement inactive," the mobile unit 100 can choose simply to estimate link quality with enhancement gain from all received bursts modulated with the modulation scheme associated with the algorithm and link quality without the enhancement gain from only these bursts where the algorithm is deactivated and these two link qualities can then be used to determine the performance gain of the algorithm 170 (paragraph 94), reading on claimed "measuring the operating results with the performance enhancement active, measuring the operating results with the performance enhancement inactive." Johan also discloses the link quality for the modulation scheme(s), to which the enhancing algorithm can be applied, is determined both without activation of the algorithm and with operation of the algorithm (paragraph 99). Johan also discloses that for this/these modulation scheme(s) generally two link quality measures are determined, where the one determined with activation of the algorithm typically is the better one, i.e. smaller if the measure is represented as BEP (paragraph 99). Johan also discloses a link quality comparator or comparing unit 182 is implemented in the

enhancement generator 180 for comparing these two link quality measures for a modulation scheme and the link quality enhancement could be expressed as a difference between the quality measures or as a ratio of them (paragraph 99), reading on claimed "comparing the measurements with the performance enhancement active and the performance enhancement inactive."

However, Johan fails to disclose preparing and displaying a display indicator on the WTRU showing the performance difference of the WTRU when the performance enhancement is active and inactive. The Examiner contends this feature was old and well known in the art at the time of invention as taught by Hill.

In an analogous art, Hill teaches an invention that relates to component subsystem measurements, and more particularly to the remote estimation of amplifier functionality using a measurement instrument coupled to the amplifier via a transmission medium (column 1, lines 7-10). Hill also teaches a wireless communications cell site 10 is shown having an antenna-mounted amplifier, or preamplifier 11, that requires testing to estimate if the amplifier is functioning properly (column 2, lines 54-56). Hill also teaches to estimate the functionality of the amplifier 11 at the top of the tower 12 from the base station 18, the RF measurement instrument 30 is coupled to the coax cable 20 that is coupled to the amplifier, as indicated by the process flow in FIG. 3 and the process involves turning on and off the amplifier 11 from the base station 18 while measuring the noise power across a frequency spectrum with the RF measurement instrument 30 (column 3, lines 56-62). Hill also teaches The RF measurement instrument 30 may be used to sweep across a range of frequencies to determine which channels of the system are receiving signals and which are not (column 4, lines 28-30). Hill also teaches then when the results for the powered and unpowered states of the amplifier 11 are obtained, the results for the channels where there is an absence of signal and for the channels where there is

a signal constantly as determined by repetitive measurements may be compared to appropriate threshold values based on the parameters mentioned above (column 4, lines 30-35). Hill also teaches the estimate of the functionality of the amplifier 11 may be displayed as an average signal to noise ratio of the amplifier, or as an ON/OFF ratio of signal power and/or noise power (column 4, lines 35-38), reading on claimed "preparing and displaying a display indicator on the WTRU showing the performance difference of the WTRU when the performance enhancement is active and inactive."

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to develop a method for indicating performance enhancements in a wireless transmit/receive unit (WTRU) to a user in a wireless communication system, the method comprising the steps of: (a) operating a radio link to the WTRU with a performance enhancement active; (b) measuring the operating results with the performance enhancement active; (c) operating a radio link to the WTRU with the performance enhancement inactive; (d) measuring the operating results with the performance enhancement inactive; (e) comparing the measurements with the performance enhancement active and the performance enhancement inactive, as disclosed by Johan, preparing and displaying a display indicator on the WTRU showing the performance difference of the WTRU when the performance enhancement is active and inactive, as taught by Hill, to enable a mobile subscriber to determine the effectiveness of a signal enhancing component of the wireless device.

As to **claim 2**, Johan and Hill teach everything as applied in claim 1 and Johan also discloses *steps (a) and (b) are performed before steps (c) and (d)* (see paragraph 94).

As to **claim 3**, Johan and Hill teach everything as applied in claim 1 and Johan also discloses *steps (c) and (d) are performed before steps (a) and (b)* (see paragraph 94).

As to **claim 4**, Johan discloses invention generally relates to modulation scheme management in radio communications systems and in particular to a mobile-unit-assisted modulation scheme management in such systems (paragraph 1). Johan also discloses invention involves a mobile-unit-assisted generation of modulation-scheme-dependent link quality data used as a basis for selection of a modulation to use on data transmitted to the mobile unit (paragraph 13). Johan also discloses the mobile unit could be equipped with a link quality enhancing algorithm, reading on claimed "performance enhancement," that is operable on data modulated using a specific modulation scheme, or a specific subset of the available schemes (paragraph 19). Johan also discloses this enhancing algorithm will then improve the link quality experienced by the mobile unit when data is modulated with the specific modulation scheme(s) but not with other schemes (paragraph 19). Johan also discloses the mobile unit preferably determines the performance gain (quality enhancement) due to this algorithm (paragraph 19), reading claimed "a method for indicating performance enhancements in a wireless transmit/receive unit (WTRU) to a user in a wireless communication system."

Johan also discloses this mobile unit 100 embodiment has access to a link quality enhancing algorithm or unit 170 that is applicable for data modulated using a subset of the available modulation schemes (paragraph 87). Johan also discloses an enhancing algorithm 170 allows usage of a given modulation scheme even under radio conditions that otherwise would not be possible due to a too low link quality (paragraph 87). Johan also discloses the algorithm 170 is able to enhance the link quality on the communications link (paragraph 87), reading on claimed "wherein a performance enhancement improves existing performance of the WTRU."

Johan also discloses the enhancement algorithm 170 is typically activated in some bursts and deactivated in other bursts the mobile unit 100 can choose simply to estimate link

quality with enhancement gain from all received bursts modulated with the modulation scheme associated with the algorithm and link quality without the enhancement gain from only these bursts where the algorithm is deactivated and these two link qualities can then be used to determine the performance gain of the algorithm 170 (paragraph 94), reading on claimed "measuring the characteristics of a received signal at the WTRU with a performance enhancement enabled." Johan also discloses the link quality for the modulation scheme(s), to which the enhancing algorithm can be applied, is determined both without activation of the algorithm and with operation of the algorithm (paragraph 99). Johan also discloses that for this/these modulation scheme(s) generally two link quality measures are determined, where the one determined with activation of the algorithm typically is the better one, i.e. smaller if the measure is represented as BEP (paragraph 99). Johan also discloses a link quality comparator or comparing unit 182 is implemented in the enhancement generator 180 for comparing these two link quality measures for a modulation scheme and the link quality enhancement could be expressed as a difference between the quality measures or as a ratio of them (paragraph 99), reading on claimed "calculating a gain value based upon the performance difference in the WTRU between when the performance enhancement is enabled and not enabled."

However, Johan fails to teach preparing and displaying a display indicator on the WTRU based upon the gain value. The Examiner contends this feature was old and well known in the art at the time of invention as taught by Hill.

In an analogous art, Hill teaches an invention that relates to component subsystem measurements, and more particularly to the remote estimation of amplifier functionality using a measurement instrument coupled to the amplifier via a transmission medium (column 1, lines 7-10). Hill also teaches a wireless communications cell site 10 is shown having an antenna-mounted amplifier, or preamplifier 11, that requires testing to estimate if the amplifier is

functioning properly (column 2, lines 54-56). Hill also teaches to estimate the functionality of the amplifier 11 at the top of the tower 12 from the base station 18, the RF measurement instrument 30 is coupled to the coax cable 20 that is coupled to the amplifier, as indicated by the process flow in FIG. 3 and the process involves turning on and off the amplifier 11 from the base station 18 while measuring the noise power across a frequency spectrum with the RF measurement instrument 30 (column 3, lines 56-62). Hill also teaches The RF measurement instrument 30 may be used to sweep across a range of frequencies to determine which channels of the system are receiving signals and which are not (column 4, lines 28-30). Hill also teaches then when the results for the powered and unpowered states of the amplifier 11 are obtained, the results for the channels where there is an absence of signal and for the channels where there is a signal constantly as determined by repetitive measurements may be compared to appropriate threshold values based on the parameters mentioned above (column 4, lines 30-35). Hill also teaches the estimate of the functionality of the amplifier 11 may be displayed as an average signal to noise ratio of the amplifier, or as an ON/OFF ratio of signal power and/or noise power (column 4, lines 35-38), reading on claimed "preparing and displaying a display indicator on the WTRU based upon the gain value."

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to develop a method for indicating performance enhancements in a wireless transmit/receive unit (WTRU) to a user in a wireless communication system, the method comprising the steps of: measuring the characteristics of a received signal at the WTRU with a performance enhancement enabled; calculating a gain value based upon the performance difference in the WTRU between when the performance enhancement is enabled and not enabled, as disclosed by Johan, preparing and displaying a display indicator on the WTRU

based upon the gain value, as taught by Hill, to enable a mobile subscriber to determine the effectiveness of a signal enhancing component of the wireless device.

As to **claim 5**, Johan discloses invention generally relates to modulation scheme management in radio communications systems, and in particular to a mobile-unit-assisted modulation scheme management in such systems (paragraph 1). Johan also discloses invention involves a mobile-unit-assisted generation of modulation-scheme-dependent link quality data used as a basis for selection of a modulation to use on data transmitted to the mobile unit (paragraph 13). Johan also discloses the mobile unit could be equipped with a link quality enhancing algorithm, reading on claimed "performance enhancement," that is operable on data modulated using a specific modulation scheme, or a specific subset of the available schemes (paragraph 19). Johan also discloses this enhancing algorithm will then improve the link quality experienced by the mobile unit when data is modulated with the specific modulation scheme(s) but not with other schemes (paragraph 19). Johan also discloses the mobile unit preferably determines the performance gain (quality enhancement) due to this algorithm (paragraph 19), reading claimed "a method for indicating performance enhancements in a wireless transmit/receive unit (WTRU) to a user in a wireless communication system."

Johan also discloses this mobile unit 100 embodiment has access to a link quality enhancing algorithm or unit 170 that is applicable for data modulated using a subset of the available modulation schemes (paragraph 87). Johan also discloses an enhancing algorithm 170 allows usage of a given modulation scheme even under radio conditions that otherwise would not be possible due to a too low link quality (paragraph 87). Johan also discloses the algorithm 170 is able to enhance the link quality on the communications link (paragraph 87), reading on claimed "wherein a performance enhancement improves existing performance of the WTRU."

Johan also discloses the enhancement algorithm 170 is typically activated in some bursts and deactivated in other bursts, reading on claimed "activating a performance enhancement in the WTRU, turning the performance enhancement off," the mobile unit 100 can choose simply to estimate link quality with enhancement gain from all received bursts modulated with the modulation scheme associated with the algorithm and link quality without the enhancement gain from only these bursts where the algorithm is deactivated and these two link qualities can then be used to determine the performance gain of the algorithm 170 (paragraph 94), reading on claimed "measuring the operating results with the performance enhancement active, measuring the operating results with the performance enhancement inactive." Johan also discloses the link quality for the modulation scheme(s), to which the enhancing algorithm can be applied, is determined both without activation of the algorithm and with operation of the algorithm (paragraph 99). Johan also discloses that for this/these modulation scheme(s) generally two link quality measures are determined, where the one determined with activation of the algorithm typically is the better one, i.e. smaller if the measure is represented as BEP (paragraph 99). Johan also discloses a link quality comparator or comparing unit 182 is implemented in the enhancement generator 180 for comparing these two link quality measures for a modulation scheme and the link quality enhancement could be expressed as a difference between the quality measures or as a ratio of them (paragraph 99).

However, Johan fails to disclose preparing and displaying a display indicator on the WTRU showing the performance value with the performance enhancement active and preparing and displaying a display indicator on the WTRU showing the performance value with the performance enhancement inactive. The Examiner contends this feature was old and well known in the art at the time of invention as taught by Hill.

In an analogous art, Hill teaches an invention that relates to component subsystem measurements, and more particularly to the remote estimation of amplifier functionality using a measurement instrument coupled to the amplifier via a transmission medium (column 1, lines 7-10). Hill also teaches a wireless communications cell site 10 is shown having an antenna-mounted amplifier, or preamplifier 11, that requires testing to estimate if the amplifier is functioning properly (column 2, lines 54-56). Hill also teaches to estimate the functionality of the amplifier 11 at the top of the tower 12 from the base station 18, the RF measurement instrument 30 is coupled to the coax cable 20 that is coupled to the amplifier, as indicated by the process flow in FIG. 3 and the process involves turning on and off the amplifier 11 from the base station 18 while measuring the noise power across a frequency spectrum with the RF measurement instrument 30 (column 3, lines 56-62). Hill also teaches The RF measurement instrument 30 may be used to sweep across a range of frequencies to determine which channels of the system are receiving signals and which are not (column 4, lines 28-30). Hill also teaches then when the results for the powered and unpowered states of the amplifier 11 are obtained, the results for the channels where there is an absence of signal and for the channels where there is a signal constantly as determined by repetitive measurements may be compared to appropriate threshold values based on the parameters mentioned above (column 4, lines 30-35). Hill also teaches the estimate of the functionality of the amplifier 11 may be displayed as an average signal to noise ratio of the amplifier, or as an ON/OFF ratio of signal power and/or noise power (column 4, lines 35-38), reading on claimed "preparing and displaying a display indicator on the WTRU showing the performance value with the performance enhancement active and preparing and displaying a display indicator on the WTRU showing the performance value with the performance enhancement inactive."

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to develop a method for indicating performance enhancements in a wireless transmit/receive unit (WTRU) to a user in a wireless communication system, wherein a performance enhancement improves existing performance of the WTRU, the method comprising the steps of: activating a performance enhancement in the WTRU, measuring the operating results with the performance enhancement active, turning the performance enhancement off; measuring the operating results with the performance enhancement inactive, as disclosed by Johan, preparing and displaying a display indicator on the WTRU showing the performance value with the performance enhancement active and preparing and displaying a display indicator on the WTRU showing the performance value with the performance enhancement inactive, as taught by Hill, to enable a mobile subscriber to determine the effectiveness of a signal enhancing component of the wireless device.

As to **claim 6**, Johan discloses invention generally relates to modulation scheme management in radio communications systems and in particular to a mobile-unit-assisted modulation scheme management in such systems (paragraph 1). Johan also discloses invention involves a mobile-unit-assisted generation of modulation-scheme-dependent link quality data used as a basis for selection of a modulation to use on data transmitted to the mobile unit (paragraph 13). Johan also discloses the mobile unit could be equipped with a link quality enhancing algorithm, reading on claimed "performance enhancement," that is operable on data modulated using a specific modulation scheme, or a specific subset of the available schemes (paragraph 19). Johan also discloses this enhancing algorithm will then improve the link quality experienced by the mobile unit when data is modulated with the specific modulation scheme(s) but not with other schemes (paragraph 19). Johan also discloses the mobile unit preferably determines the performance gain (quality enhancement) due to this algorithm

(paragraph 19), reading claimed "a method for indicating performance enhancements in a wireless transmit/receive unit (WTRU) to a user in a wireless communication system."

Johan also discloses this mobile unit 100 embodiment has access to a link quality enhancing algorithm or unit 170 that is applicable for data modulated using a subset of the available modulation schemes (paragraph 87). Johan also discloses an enhancing algorithm 170 allows usage of a given modulation scheme even under radio conditions that otherwise would not be possible due to a too low link quality (paragraph 87). Johan also discloses the algorithm 170 is able to enhance the link quality on the communications link (paragraph 87), reading on claimed "wherein a performance enhancement improves existing performance of the WTRU."

Johan also discloses the enhancement algorithm 170 is typically activated in some bursts and deactivated in other bursts, reading on claimed "deactivating a performance enhancement in the WTRU, turning the performance enhancement on," the mobile unit 100 can choose simply to estimate link quality with enhancement gain from all received bursts modulated with the modulation scheme associated with the algorithm and link quality without the enhancement gain from only these bursts where the algorithm is deactivated and these two link qualities can then be used to determine the performance gain of the algorithm 170 (paragraph 94), reading on claimed "measuring the operating results with the performance enhancement inactive, measuring the operating results with the performance enhancement active." Johan also discloses the link quality for the modulation scheme(s), to which the enhancing algorithm can be applied, is determined both without activation of the algorithm and with operation of the algorithm (paragraph 99). Johan also discloses that for this/these modulation scheme(s) generally two link quality measures are determined, where the one determined with activation of the algorithm typically is the better one, i.e. smaller if the measure is represented as BEP

(paragraph 99). Johan also discloses a link quality comparator or comparing unit 182 is implemented in the enhancement generator 180 for comparing these two link quality measures for a modulation scheme and the link quality enhancement could be expressed as a difference between the quality measures or as a ratio of them (paragraph 99).

However, Johan fails to disclose preparing and displaying a display indicator on the WTRU showing the performance value with the performance enhancement active and preparing and displaying a display indicator on the WTRU showing the performance value with the performance enhancement inactive. The Examiner contends this feature was old and well known in the art at the time of invention as taught by Hill.

In an analogous art, Hill teaches an invention that relates to component subsystem measurements, and more particularly to the remote estimation of amplifier functionality using a measurement instrument coupled to the amplifier via a transmission medium (column 1, lines 7-10). Hill also teaches a wireless communications cell site 10 is shown having an antenna-mounted amplifier, or preamplifier 11, that requires testing to estimate if the amplifier is functioning properly (column 2, lines 54-56). Hill also teaches to estimate the functionality of the amplifier 11 at the top of the tower 12 from the base station 18, the RF measurement instrument 30 is coupled to the coax cable 20 that is coupled to the amplifier, as indicated by the process flow in FIG. 3 and the process involves turning on and off the amplifier 11 from the base station 18 while measuring the noise power across a frequency spectrum with the RF measurement instrument 30 (column 3, lines 56-62). Hill also teaches The RF measurement instrument 30 may be used to sweep across a range of frequencies to determine which channels of the system are receiving signals and which are not (column 4, lines 28-30). Hill also teaches then when the results for the powered and unpowered states of the amplifier 11 are obtained, the results for the channels where there is an absence of signal and for the channels where there is

a signal constantly as determined by repetitive measurements may be compared to appropriate threshold values based on the parameters mentioned above (column 4, lines 30-35). Hill also teaches the estimate of the functionality of the amplifier 11 may be displayed as an average signal to noise ratio of the amplifier, or as an ON/OFF ratio of signal power and/or noise power (column 4, lines 35-38), reading on claimed "preparing and displaying a display indicator on the WTRU showing the performance value with the performance enhancement active and preparing and displaying a display indicator on the WTRU showing the performance value with the performance enhancement inactive."

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to develop a method for indicating performance enhancements in a wireless transmit/receive unit (WTRU) to a user in a wireless communication system, wherein a performance enhancement improves existing performance of the WTRU, the method comprising the steps of: deactivating a performance enhancement in the WTRU; measuring the operating results with the performance enhancement inactive; turning the performance enhancement on; measuring the operating results with the performance enhancement active, as disclosed by Johan, preparing and displaying a display indicator on the WTRU showing the performance value with the performance enhancement active and preparing and displaying a display indicator on the WTRU showing the performance value with the performance enhancement inactive, as taught by Hill, to enable a mobile subscriber to determine the effectiveness of a signal enhancing component of the wireless device.

As to **claim 7**, Johan discloses invention generally relates to modulation scheme management in radio communications systems and in particular to a mobile-unit-assisted modulation scheme management in such systems (paragraph 1). Johan also discloses invention involves a mobile-unit-assisted generation of modulation-scheme-dependent link

quality data used as a basis for selection of a modulation to use on data transmitted to the mobile unit (paragraph 13). Johan also discloses the mobile unit could be equipped with a link quality enhancing algorithm, reading on claimed "performance enhancement," that is operable on data modulated using a specific modulation scheme, or a specific subset of the available schemes (paragraph 19). Johan also discloses this enhancing algorithm will then improve the link quality experienced by the mobile unit when data is modulated with the specific modulation scheme(s) but not with other schemes (paragraph 19). Johan also discloses the mobile unit preferably determines the performance gain (quality enhancement) due to this algorithm (paragraph 19), reading claimed "a method for indicating performance enhancements to a user in a wireless communication system, the wireless communication system including a wireless transmit/receive unit (WTRU) and a base station (BS)."

Johan also discloses this mobile unit 100 embodiment has access to a link quality enhancing algorithm or unit 170 that is applicable for data modulated using a subset of the available modulation schemes (paragraph 87). Johan also discloses an enhancing algorithm 170 allows usage of a given modulation scheme even under radio conditions that otherwise would not be possible due to a too low link quality (paragraph 87). Johan also discloses the algorithm 170 is able to enhance the link quality on the communications link (paragraph 87), reading on claimed "wherein a performance enhancement improves existing performance of the WTRU."

Johan also discloses the enhancement algorithm 170 is typically activated in some bursts and deactivated in other bursts, reading on claimed "activating an enhancement in the WTRU, deactivating the enhancement in the WTRU," the mobile unit 100 can choose simply to estimate link quality with enhancement gain from all received bursts modulated with the modulation scheme associated with the algorithm and link quality without the enhancement gain

from only these bursts where the algorithm is deactivated and these two link qualities can then be used to determine the performance gain of the algorithm 170 (paragraph 94). Johan also discloses the link quality for the modulation scheme(s), to which the enhancing algorithm can be applied, is determined both without activation of the algorithm and with operation of the algorithm (paragraph 99). Johan also discloses that for this/these modulation scheme(s) generally two link quality measures are determined, where the one determined with activation of the algorithm typically is the better one, i.e. smaller if the measure is represented as BEP (paragraph 99). Johan also discloses a link quality comparator or comparing unit 182 is implemented in the enhancement generator 180 for comparing these two link quality measures for a modulation scheme and the link quality enhancement could be expressed as a difference between the quality measures or as a ratio of them (paragraph 99).

Johan also discloses the unit (PCU) receiving the report with the selection information could then optionally perform a similar link quality comparison and modulation scheme and MCS selection and it might be possible that the PCU proposes another selection of modulation scheme and/or MCS than the mobile unit 100. This may be due to that the PCU have access to additional input data, e.g. power level data, which is not accessible for the mobile unit 100 so that the PCU can perform a more accurate selection (paragraph 83), reading on claimed "transmitting signals from the BS to the WTRU; measuring the operating results at the BS; comparing the measurement results at the BS."

However, Johan fails to disclose displaying the comparison results to the user via the WTRU. The Examiner contends this feature was old and well known in the art at the time of invention as taught by Hill.

Hill teaches an invention that relates to component subsystem measurements, and more particularly to the remote estimation of amplifier functionality using a measurement instrument

coupled to the amplifier via a transmission medium (column 1, lines 7-10). Hill also teaches a wireless communications cell site 10 is shown having an antenna-mounted amplifier, or preamplifier 11, that requires testing to estimate if the amplifier is functioning properly (column 2, lines 54-56). Hill also teaches to estimate the functionality of the amplifier 11 at the top of the tower 12 from the base station 18, the RF measurement instrument 30 is coupled to the coax cable 20 that is coupled to the amplifier, as indicated by the process flow in FIG. 3 and the process involves turning on and off the amplifier 11 from the base station 18 while measuring the noise power across a frequency spectrum with the RF measurement instrument 30 (column 3, lines 56-62). Hill also teaches The RF measurement instrument 30 may be used to sweep across a range of frequencies to determine which channels of the system are receiving signals and which are not (column 4, lines 28-30). Hill also teaches then when the results for the powered and unpowered states of the amplifier 11 are obtained, the results for the channels where there is an absence of signal and for the channels where there is a signal constantly as determined by repetitive measurements may be compared to appropriate threshold values based on the parameters mentioned above (column 4, lines 30-35). Hill also teaches the estimate of the functionality of the amplifier 11 may be displayed as an average signal to noise ratio of the amplifier, or as an ON/OFF ratio of signal power and/or noise power (column 4, lines 35-38), reading on claimed "displaying the comparison results to the user via the WTRU."

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to develop method for indicating performance enhancements to a user in a wireless communication system, the wireless communication system including a wireless transmit/receive unit (WTRU) and a base station (BS), the method comprising the steps of: activating an enhancement in the WTRU; transmitting signals from the BS to the WTRU; measuring the operating results at the BS; deactivating the enhancement in the WTRU;

transmitting signals from the BS to the WTRU; measuring the operating results at the BS; comparing the measurement results at the BS, as disclosed by Johan, displaying the comparison results to the user via the WTRU, as taught by Hill, to enable a mobile subscriber to determine the effectiveness of a signal enhancing component of the wireless device.

As to **claim 8**, Johan discloses invention generally relates to modulation scheme management in radio communications systems and in particular to a mobile-unit-assisted modulation scheme management in such systems (paragraph 1). Johan also discloses invention involves a mobile-unit-assisted generation of modulation-scheme-dependent link quality data used as a basis for selection of a modulation to use on data transmitted to the mobile unit (paragraph 13). Johan also discloses the mobile unit could be equipped with a link quality enhancing algorithm, reading on claimed "performance enhancement," that is operable on data modulated using a specific modulation scheme, or a specific subset of the available schemes (paragraph 19). Johan also discloses this enhancing algorithm will then improve the link quality experienced by the mobile unit when data is modulated with the specific modulation scheme(s) but not with other schemes (paragraph 19). Johan also discloses the mobile unit preferably determines the performance gain (quality enhancement) due to this algorithm (paragraph 19), reading claimed "a method for indicating performance enhancements to a user in a wireless communication system, the wireless communication system including a wireless transmit/receive unit (WTRU) and a base station (BS)."

Johan also discloses this mobile unit 100 embodiment has access to a link quality enhancing algorithm or unit 170 that is applicable for data modulated using a subset of the available modulation schemes (paragraph 87). Johan also discloses an enhancing algorithm 170 allows usage of a given modulation scheme even under radio conditions that otherwise would not be possible due to a too low link quality (paragraph 87). Johan also discloses the

algorithm 170 is able to enhance the link quality on the communications link (paragraph 87), reading on claimed "wherein a performance enhancement improves existing performance of the WTRU."

Johan also discloses the enhancement algorithm 170 is typically activated in some bursts and deactivated in other bursts, reading on claimed "activating an enhancement in the WTRU," the mobile unit 100 can choose simply to estimate link quality with enhancement gain from all received bursts modulated with the modulation scheme associated with the algorithm and link quality without the enhancement gain from only these bursts where the algorithm is deactivated and these two link qualities can then be used to determine the performance gain of the algorithm 170 (paragraph 94). Johan also discloses the link quality for the modulation scheme(s), to which the enhancing algorithm can be applied, is determined both without activation of the algorithm and with operation of the algorithm (paragraph 99). Johan also discloses that for this/these modulation scheme(s) generally two link quality measures are determined, where the one determined with activation of the algorithm typically is the better one, i.e. smaller if the measure is represented as BEP (paragraph 99). Johan also discloses a link quality comparator or comparing unit 182 is implemented in the enhancement generator 180 for comparing these two link quality measures for a modulation scheme and the link quality enhancement could be expressed as a difference between the quality measures or as a ratio of them (paragraph 99).

Johan also discloses the unit (PCU) receiving the report with the selection information could then optionally perform a similar link quality comparison and modulation scheme and MCS selection and it might be possible that the PCU proposes another selection of modulation scheme and/or MCS than the mobile unit 100. This may be due to that the PCU have access to additional input data, e.g. power level data, which is not accessible for the mobile unit 100 so

that the PCU can perform a more accurate selection (paragraph 83), reading on claimed "transmitting signals from the BS to the WTRU; measuring the operating results at the BS with an enhancement inactive at the WTRU; transmitting signals from the BS to the WTRU; measuring the operating results at the BS; comparing the measurement results at the BS."

However, Johan fails to disclose displaying the comparison results to the user via the WTRU. The Examiner contends this feature was old and well known in the art at the time of invention as taught by Hill.

Hill teaches an invention that relates to component subsystem measurements, and more particularly to the remote estimation of amplifier functionality using a measurement instrument coupled to the amplifier via a transmission medium (column 1, lines 7-10). Hill also teaches a wireless communications cell site 10 is shown having an antenna-mounted amplifier, or preamplifier 11, that requires testing to estimate if the amplifier is functioning properly (column 2, lines 54-56). Hill also teaches to estimate the functionality of the amplifier 11 at the top of the tower 12 from the base station 18, the RF measurement instrument 30 is coupled to the coax cable 20 that is coupled to the amplifier, as indicated by the process flow in FIG. 3 and the process involves turning on and off the amplifier 11 from the base station 18 while measuring the noise power across a frequency spectrum with the RF measurement instrument 30 (column 3, lines 56-62). Hill also teaches The RF measurement instrument 30 may be used to sweep across a range of frequencies to determine which channels of the system are receiving signals and which are not (column 4, lines 28-30). Hill also teaches then when the results for the powered and unpowered states of the amplifier 11 are obtained, the results for the channels where there is an absence of signal and for the channels where there is a signal constantly as determined by repetitive measurements may be compared to appropriate threshold values based on the parameters mentioned above (column 4, lines 30-35). Hill also teaches the

estimate of the functionality of the amplifier 11 may be displayed as an average signal to noise ratio of the amplifier, or as an ON/OFF ratio of signal power and/or noise power (column 4, lines 35-38), reading on claimed "displaying the comparison results to the user via the WTRU."

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to develop a method for indicating performance enhancements to a user in a wireless communication system, the wireless communication system including a wireless transmit/receive unit (WTRU) and a base station (BS), the method comprising the steps of: transmitting signals from the BS to the WTRU; measuring the operating results at the BS with an enhancement inactive at the WTRU; activating the enhancement in the WTRU; transmitting signals from the BS to the WTRU; measuring the operating results at the BS; comparing the measurement results at the BS, disclosed by Johan, displaying the comparison results to the user via the WTRU, taught by Hill, to enable a mobile subscriber to determine the effectiveness of a signal enhancing component of the wireless device.

As to **claim 9**, Johan discloses invention generally relates to modulation scheme management in radio communications systems and in particular to a mobile-unit-assisted modulation scheme management in such systems (paragraph 1). Johan also discloses invention involves a mobile-unit-assisted generation of modulation-scheme-dependent link quality data used as a basis for selection of a modulation to use on data transmitted to the mobile unit (paragraph 13). Johan also discloses the mobile unit, reading on claimed "handset," could be equipped with a link quality enhancing algorithm, reading on claimed "performance enhancement," that is operable on data modulated using a specific modulation scheme, or a specific subset of the available schemes (paragraph 19). Johan also discloses this enhancing algorithm will then improve the link quality experienced by the mobile unit when data is modulated with the specific modulation scheme(s) but not with other schemes (paragraph 19).

Johan also discloses the mobile unit preferably determines the performance gain (quality enhancement) due to this algorithm (paragraph 19), reading claimed "a handset for use in a wireless communication system."

Johan also discloses mobile unit 100 embodiment has access to a link quality enhancing algorithm or unit 170, reading on claimed "activating means," that is applicable for data modulated using a subset of the available modulation schemes (paragraph 87). Johan also discloses an enhancing algorithm 170 allows usage of a given modulation scheme even under radio conditions that otherwise would not be possible due to a too low link quality (paragraph 87). Johan also discloses the algorithm 170 is able to enhance the link quality on the communications link experienced by the mobile unit 100 during usage of one or a subset of the modulation schemes and the enhancing unit 170 could have interference suppressing capability or some other functionality for link quality enhancement (paragraph 87), reading on claimed "activating means for activating and deactivating a performance enhancement in said handset, wherein the performance enhancement improves existing performance of the WTRU."

Johan also discloses link quality enhancement generator or generating unit 180 is preferably implemented in the mobile unit 100 for determining the quality enhancement caused by operation of the algorithm 170 and the generator 180, reading on claimed "measuring means," typically determines such an enhancement as the obtained performance gain (paragraph 93). Johan also discloses the enhancement algorithm 170 is typically activated in some bursts and deactivated in other bursts, the mobile unit 100 can choose simply to estimate link quality with enhancement gain from all received bursts modulated with the modulation scheme associated with the algorithm and link quality without the enhancement gain from only these bursts where the algorithm is deactivated and these two link qualities can then be used to determine the performance gain of the algorithm 170 (paragraph 94), reading on claimed

"measuring means for measuring operating results of said handset with the performance enhancement active and the performance enhancement inactive."

However, Johan fails to disclose display means for displaying an indicator on said handset, said indicator showing operating results of said handset with the performance enhancement active and the performance enhancement inactive. The Examiner contends this feature was old and well known in the art at the time of invention as taught by Hill.

Hill teaches an invention that relates to component subsystem measurements, and more particularly to the remote estimation of amplifier functionality using a measurement instrument coupled to the amplifier via a transmission medium (column 1, lines 7-10). Hill also teaches a wireless communications cell site 10 is shown having an antenna-mounted amplifier, or preamplifier 11, that requires testing to estimate if the amplifier is functioning properly (column 2, lines 54-56). Hill also teaches to estimate the functionality of the amplifier 11 at the top of the tower 12 from the base station 18, the RF measurement instrument 30 is coupled to the coax cable 20 that is coupled to the amplifier, as indicated by the process flow in FIG. 3 and the process involves turning on and off the amplifier 11 from the base station 18 while measuring the noise power across a frequency spectrum with the RF measurement instrument 30 (column 3, lines 56-62). Hill also teaches The RF measurement instrument 30 may be used to sweep across a range of frequencies to determine which channels of the system are receiving signals and which are not (column 4, lines 28-30). Hill also teaches then when the results for the powered and unpowered states of the amplifier 11 are obtained, the results for the channels where there is an absence of signal and for the channels where there is a signal constantly as determined by repetitive measurements may be compared to appropriate threshold values based on the parameters mentioned above (column 4, lines 30-35). Hill also teaches the estimate of the functionality of the amplifier 11 may be displayed as an average signal to noise

ratio of the amplifier, or as an ON/OFF ratio of signal power and/or noise power (column 4, lines 35-38), reading on claimed "display means for displaying an indicator on said handset, said indicator showing operating results of said handset with the performance enhancement active and the performance enhancement inactive."

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention a handset for use in a wireless communication system, comprising: activating means for activating and deactivating a performance enhancement in said handset; measuring means for measuring operating results of said handset with the performance enhancement active and the performance enhancement inactive, as disclosed by Johan, display means for displaying an indicator on said handset, said indicator showing operating results of said handset with the performance enhancement active and the performance enhancement inactive, as taught by Hill, display means for displaying an indicator on said handset, said indicator showing operating results of said handset with the performance enhancement active and the performance enhancement inactive, to enable a mobile subscriber to determine the effectiveness of a signal enhancing component of the wireless device.

As to **claim 10**, Johan and Hill teach everything as applied in claim 9 and Johan also discloses comparing means for comparing the measured operating results of said handset with the performance enhancement active and the performance enhancement inactive (see paragraphs 93 and 99).

However, Johan fails to disclose said indicator shows the comparison results. The Examiner contends this feature was old and well known in the art at the time of invention as taught by Hill.

Hill also teaches said indicator shows the comparison results (see column 4, lines 30-39).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention a handset, taught by Johan and Hill, comparing means for comparing the measured operating results of said handset with the performance enhancement active and the performance enhancement inactive, also disclosed by Johan, indicator shows the comparison results, as taught by Hill, to enable a mobile subscriber to determine the effectiveness of a signal enhancing component of the wireless device.

As to **claim 16**, Johan and Hill teach everything as applied in claim 9 and Johan also discloses measuring means only measures the operating results of said handset with the performance enhancement inactive (see paragraph 94).

As to **claim 17**, Johan and Hill teach everything as applied in claim 9, Johan discloses everything as applied in claim 16 and Johan also discloses extrapolating means for extrapolating the operating results of said handset based upon the measured operating results of said handset with the performance enhancement inactive (see paragraph 94).

As to **claim 18**, Johan discloses an invention generally relates to modulation scheme management in radio communications systems and in particular to a mobile-unit-assisted modulation scheme management in such systems (paragraph 1). Johan also discloses invention involves a mobile-unit-assisted generation of modulation-scheme-dependent link quality data used as a basis for selection of a modulation to use on data transmitted to the mobile unit (paragraph 13). Johan also discloses the mobile unit, reading on claimed "handset," could be equipped with a link quality enhancing algorithm, reading on claimed "performance enhancement," that is operable on data modulated using a specific modulation scheme, or a specific subset of the available schemes (paragraph 19). Johan also discloses this enhancing algorithm will then improve the link quality experienced by the mobile unit when data is modulated with the specific modulation scheme(s) but not with other schemes (paragraph 19).

Johan also discloses the mobile unit preferably determines the performance gain (quality enhancement) due to this algorithm (paragraph 19), reading claimed "a wireless communication system, comprising: a handset."

Johan also discloses mobile unit 100 embodiment has access to a link quality enhancing algorithm or unit 170, reading on claimed "activating means," that is applicable for data modulated using a subset of the available modulation schemes (paragraph 87). Johan also discloses an enhancing algorithm 170 allows usage of a given modulation scheme even under radio conditions that otherwise would not be possible due to a too low link quality (paragraph 87). Johan also discloses the algorithm 170 is able to enhance the link quality on the communications link experienced by the mobile unit 100 during usage of one or a subset of the modulation schemes and the enhancing unit 170 could have interference suppressing capability or some other functionality for link quality enhancement (paragraph 87), reading on claimed "activating means for activating and deactivating a performance enhancement in said handset, wherein the performance enhancement improves existing performance of the WTRU."

Johan also discloses link quality enhancement generator or generating unit 180 is preferably implemented in the mobile unit 100 for determining the quality enhancement caused by operation of the algorithm 170 and the generator 180 typically determines such an enhancement as the obtained performance gain (paragraph 93). Johan also discloses the enhancement algorithm 170 is typically activated in some bursts and deactivated in other bursts, the mobile unit 100 can choose simply to estimate link quality with enhancement gain from all received bursts modulated with the modulation scheme associated with the algorithm and link quality without the enhancement gain from only these bursts where the algorithm is deactivated and these two link qualities can then be used to determine the performance gain of the algorithm 170 (paragraph 94).

Johan also discloses the unit (PCU) receiving the report with the selection information could then optionally perform a similar link quality comparison and modulation scheme and MCS selection. It might be possible that the PCU proposes another selection of modulation scheme and/or MCS than the mobile unit 100 (paragraph 83), reading on claimed "base station, including: measuring means for measuring operating results of said handset with the performance enhancement active and the performance enhancement inactive."

However, Johan fails to disclose display means for displaying an indicator on said handset, said indicator showing operating results of said handset with the performance enhancement active and the performance enhancement inactive. The Examiner contends this feature was old and well known in the art at the time of invention as taught by Hill.

Hill teaches an invention that relates to component subsystem measurements, and more particularly to the remote estimation of amplifier functionality using a measurement instrument coupled to the amplifier via a transmission medium (column 1, lines 7-10). Hill also teaches a wireless communications cell site 10 is shown having an antenna-mounted amplifier, or preamplifier 11, that requires testing to estimate if the amplifier is functioning properly (column 2, lines 54-56). Hill also teaches to estimate the functionality of the amplifier 11 at the top of the tower 12 from the base station 18, the RF measurement instrument 30 is coupled to the coax cable 20 that is coupled to the amplifier, as indicated by the process flow in FIG. 3 and the process involves turning on and off the amplifier 11 from the base station 18 while measuring the noise power across a frequency spectrum with the RF measurement instrument 30 (column 3, lines 56-62). Hill also teaches The RF measurement instrument 30 may be used to sweep across a range of frequencies to determine which channels of the system are receiving signals and which are not (column 4, lines 28-30). Hill also teaches then when the results for the powered and unpowered states of the amplifier 11 are obtained, the results for the channels

where there is an absence of signal and for the channels where there is a signal constantly as determined by repetitive measurements may be compared to appropriate threshold values based on the parameters mentioned above (column 4, lines 30-35). Hill also teaches the estimate of the functionality of the amplifier 11 may be displayed as an average signal to noise ratio of the amplifier, or as an ON/OFF ratio of signal power and/or noise power (column 4, lines 35-38), reading on claimed "display means for displaying an indicator on said handset, said indicator showing operating results of said handset with the performance enhancement active and the performance enhancement inactive."

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention wireless communication system, comprising: a handset, including: activating means for activating and deactivating a performance enhancement in said handset, base station, including: measuring means for measuring operating results of said handset with the performance enhancement active and the performance enhancement inactive, disclosed by Johan, display means for displaying an indicator on said handset, said indicator showing operating results of said handset with the performance enhancement active and the performance enhancement inactive, as taught by Hill, to enable a mobile subscriber to determine the effectiveness of a signal enhancing component of the wireless device.

As to **claim 19**, Johan and Hill teach everything as applied in claim 18 and Johan also discloses base station further includes comparing means for comparing the measured operating results of said handset with the performance enhancement active and the performance enhancement inactive (see paragraph 84).

However, Johan fails to disclose said indicator shows the comparison results. The Examiner contends this feature was old and well known in the art at the time of invention as taught by Hill.

Hill also teaches said indicator shows the comparison results (column 4, lines 30-39).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to develop a wireless communication system comprising a handset and base station, taught by Johan and Hill, base station further includes comparing means for comparing the measured operating results of said handset with the performance enhancement active and the performance enhancement inactive, as disclosed by Johan, said indicator shows the comparison results, as taught by, Hill, to enable a mobile subscriber to determine the effectiveness of a signal enhancing component of the wireless device.

As to **claim 20**, Johan and Hill teaches everything as applied in claim 18 and Johan also discloses base station further includes extrapolating means for extrapolating the operating results of said handset based upon the measured operating results of said handset with the performance enhancement inactive (see paragraph 83).

As to **claim 21**, Johan and Hill teaches everything as applied in claim 18 and Johan also discloses extrapolating means bases the extrapolation on the measured operating results of said handset without the performance enhancement (see paragraph 83).

As to **claim 27**, Johan discloses an invention generally relates to modulation scheme management in radio communications systems and in particular to a mobile-unit-assisted modulation scheme management in such systems (paragraph 1). Johan also discloses invention involves a mobile-unit-assisted generation of modulation-scheme-dependent link quality data used as a basis for selection of a modulation to use on data transmitted to the mobile unit (paragraph 13). Johan also discloses the mobile unit, reading on claimed "handset," could be equipped with a link quality enhancing algorithm, reading on claimed "performance enhancement," that is operable on data modulated using a specific modulation scheme, or a specific subset of the available schemes (paragraph 19). Johan also discloses this enhancing

algorithm will then improve the link quality experienced by the mobile unit when data is modulated with the specific modulation scheme(s) but not with other schemes (paragraph 19). Johan also discloses the mobile unit preferably determines the performance gain (quality enhancement) due to this algorithm (paragraph 19), reading claimed "a wireless communication system, comprising: a handset."

Johan also discloses mobile unit 100 embodiment has access to a link quality enhancing algorithm or unit 170 that is applicable for data modulated using a subset of the available modulation schemes (paragraph 87). Johan also discloses an enhancing algorithm 170 allows usage of a given modulation scheme even under radio conditions that otherwise would not be possible due to a too low link quality (paragraph 87). Johan also discloses the algorithm 170 is able to enhance the link quality on the communications link experienced by the mobile unit 100 during usage of one or a subset of the modulation schemes and the enhancing unit 170 could have interference suppressing capability or some other functionality for link quality enhancement (paragraph 87).

Johan also discloses link quality enhancement generator or generating unit 180 is preferably implemented in the mobile unit 100 for determining the quality enhancement caused by operation of the algorithm 170 and the generator 180 typically determines such an enhancement as the obtained performance gain (paragraph 93). Johan also discloses the enhancement algorithm 170 is typically activated in some bursts and deactivated in other bursts, the mobile unit 100 can choose simply to estimate link quality with enhancement gain from all received bursts modulated with the modulation scheme associated with the algorithm and link quality without the enhancement gain from only these bursts where the algorithm is deactivated and these two link qualities can then be used to determine the performance gain of the algorithm 170 (paragraph 94).

Johan also discloses the unit (PCU) receiving the report with the selection information could then optionally perform a similar link quality comparison and modulation scheme and MCS selection. It might be possible that the PCU proposes another selection of modulation scheme and/or MCS than the mobile unit 100 (paragraph 83), reading on claimed "a base station includes: extrapolating means for extrapolating operating results of said handset if said handset was capable of a performance enhancement."

However, Johan fails to disclose display means for displaying an indicator on said handset; and a base station, said indicator showing the extrapolated operating results of said handset with the performance enhancement and the operating results of said handset without the performance enhancement. The Examiner contends this feature was old and well known in the art at the time of invention as taught by Hill.

Hill teaches an invention that relates to component subsystem measurements, and more particularly to the remote estimation of amplifier functionality using a measurement instrument coupled to the amplifier via a transmission medium (column 1, lines 7-10). Hill also teaches a wireless communications cell site 10 is shown having an antenna-mounted amplifier, or preamplifier 11, that requires testing to estimate if the amplifier is functioning properly (column 2, lines 54-56). Hill also teaches to estimate the functionality of the amplifier 11 at the top of the tower 12 from the base station 18, the RF measurement instrument 30 is coupled to the coax cable 20 that is coupled to the amplifier, as indicated by the process flow in FIG. 3 and the process involves turning on and off the amplifier 11 from the base station 18 while measuring the noise power across a frequency spectrum with the RF measurement instrument 30 (column 3, lines 56-62). Hill also teaches The RF measurement instrument 30 may be used to sweep across a range of frequencies to determine which channels of the system are receiving signals and which are not (column 4, lines 28-30). Hill also teaches then when the results for the

powered and unpowered states of the amplifier 11 are obtained, the results for the channels where there is an absence of signal and for the channels where there is a signal constantly as determined by repetitive measurements may be compared to appropriate threshold values based on the parameters mentioned above (column 4, lines 30-35). Hill also teaches the estimate of the functionality of the amplifier 11 may be displayed as an average signal to noise ratio of the amplifier, or as an ON/OFF ratio of signal power and/or noise power (column 4, lines 35-38), reading on claimed "display means for displaying an indicator on said handset; and a base station, said indicator showing the extrapolated operating results of said handset with the performance enhancement and the operating results of said handset without the performance enhancement."

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention wireless communication system, comprising: a handset, a base station includes: extrapolating means for extrapolating operating results of said handset if said handset was capable of a performance enhancement by Johan, display means for displaying an indicator on said handset; and a base station, said indicator showing the extrapolated operating results of said handset with the performance enhancement and the operating results of said handset without the performance enhancement, as taught by Hill, to enable a mobile subscriber to determine the effectiveness of a signal enhancing component of the wireless device.

3. Claims 11, 22, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johan and Hill as applied to claims 9, 18, and 27 above, and further in view of Muthuswamy *et al.* (US 2004/0192290 A1).

As to **claim 11**, Johan and Hill teach everything as applied in claim 9; however, neither teach said indicator includes differently labeled elements to distinguish between operating results with the performance enhancement active and the performance enhancement inactive. The Examiner contends this feature was old and well known in the art at the time of invention as taught by Muthuswamy.

In the same field of endeavor, Muthuswamy teaches in Figure 5 the difference between the indicators (300) and (305) as the indicator (300) demonstrates a good quality signal by displaying several vertical bars and the indicator (305) demonstrates a poor signal quality by not displaying any vertical bars (see also page 5, paragraph 40).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to further require the handset and indicator, taught by Johan and Hill, that the indicator includes differently labeled elements to distinguish between operating results with the performance enhancement active and the performance enhancement inactive, as taught by Muthuswamy, to provide the user the ability to easily discern the difference in signal quality between the two indicators.

As to **claim 22**, Johan and Hill teach everything as applied in claim 18; however, neither teach said indicator includes differently labeled elements to distinguish between operating results with the performance enhancement active and the performance enhancement inactive. The Examiner contends this feature was old and well known in the art at the time of invention as taught by Muthuswamy.

In the same field of endeavor, Muthuswamy teaches in Figure 5 the difference between the indicators (300) and (305) as the indicator (300) demonstrates a good quality signal by displaying several vertical bars and the indicator (305) demonstrates a poor signal quality by not displaying any vertical bars (see also page 5, paragraph 40).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to further require the wireless communication system and indicator, taught by Johan and Hill, that the indicator includes differently labeled elements to distinguish between operating results with the performance enhancement active and the performance enhancement inactive, as taught by Muthuswamy, to provide the user the ability to easily discern the difference in signal quality between the two indicators.

As to **claim 28**, Johan and Hill teach everything as applied in claim 22; however, neither teach said indicator includes differently labeled elements to distinguish between operating results with the performance enhancement active and the performance enhancement inactive. The Examiner contends this feature was old and well known in the art at the time of invention as taught by Muthuswamy.

In the same field of endeavor, Muthuswamy teaches in Figure 5 the difference between the indicators (300) and (305) as the indicator (300) demonstrates a good quality signal by displaying several vertical bars and the indicator (305) demonstrates a poor signal quality by not displaying any vertical bars (see also page 5, paragraph 40).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to further require the wireless communication system and indicator, taught by Johan and Hill, that the indicator includes differently labeled elements to distinguish between operating results with the performance enhancement active and the performance enhancement inactive,

as taught by Muthuswamy, to provide the user the ability to easily discern the difference in signal quality between the two indicators.

4. Claims 12-15, 23-26, and 29-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johan, Hill, and Muthuswamy as applied in claims 9, 11, 18, 22, 27, and 28 above and in view of well known prior art (MPEP 2144.03).

As to **claim 12**, Johan and Hill teach everything as applied in claims 9 and Muthuswamy teaches everything as applied in claim 11; however, neither teach the elements of said indicator are labeled in different colors. The Examiner contends this feature was old and well known in the art at the time of invention as taught by well known prior art.

The Examiner takes Official Notice that it was old and well known in the art at the time of invention that elements of an indicator could be different colors either to distinguish each element or for aesthetic purposes.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to require the handset and indicator, taught by Johan, Hill, and Muthuswamy, that the elements of said indicator are labeled in different colors, as taught by well known prior art, to differentiate comparison results to the user.

As to **claim 13**, Johan and Hill teach everything as applied in claims 9 and Muthuswamy teaches everything as applied in claim 11, however, neither teach the elements of said indicator are labeled in different types of styles. The Examiner contends this feature was old and well known in the art at the time of invention as taught by well known prior art.

The Examiner takes Official Notice that is was old and well known in the art at the time of invention that elements of an indicator could be labeled in different types of styles either to distinguish each element or for aesthetic purposes.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to require the handset and indicator, taught by Johan, Hill, and Muthuswamy, that the elements of said indicator are labeled in different types of styles, as taught by well known prior art, to distinguish operating results of the performance enhancement to the wireless user.

As to **claim 14**, Johan and Hill teach everything as applied in claims 9 and Muthuswamy teaches everything as applied in claim 11, however, neither teach the elements of said indicator are labeled in different fonts. The Examiner contends this feature was old and well known in the art at the time of invention as taught by well known prior art.

The Examiner takes Official Notice that is was old and well known in the art at the time of invention that elements of an indicator could be labeled in different types of fonts either to distinguish differing information displayed on the display to the user or for aesthetic purposes.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to require the handset and indicator, taught by Johan, Hill, and Muthuswamy, that the elements of said indicator are labeled in different types of fonts, as taught by well known prior art, to demonstrate to the wireless user the difference between the operating results of the performance enhancement.

As to **claim 15**, Johan and Hill teach everything as applied in claims 9 and Muthuswamy teaches everything as applied in claim 11, however, neither teach the elements of said indicator are separated by a marker. The Examiner contends this feature was old and well known in the art at the time of invention as taught by well known prior art.

The Examiner takes Official Notice that is was old and well known in the art at the time of invention that elements of an indicator could be separated by a marker to separate the results of differing computations.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to require the handset and indicator, taught by Johan, Hill, and Muthuswamy, that the elements of said indicator are separated by a marker, as taught by well known prior art, to separate the operating results from testing the performance enhancement for ease of reading on the display by the wireless user.

As to **claim 23**, Johan and Hill teach everything as applied in claim 18 and Muthuswamy teaches everything as applied in claim 22; however, neither teach the elements of said indicator are labeled in different colors. The Examiner contends this feature was old and well known in the art at the time of invention as taught by well known prior art.

The Examiner takes Official Notice that it was old and well known in the art at the time of invention that elements of an indicator could be different colors either to distinguish each element or for aesthetic purposes.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to require the system and indicator, taught by Johan, Hill, and Muthuswamy, that the elements of said indicator are labeled in different colors, as taught by well known prior art, to differentiate comparison results to the user.

As to **claim 24**, Johan and Hill teach everything as applied in claims 18 and Muthuswamy teaches everything as applied in claim 22, however, neither teach the elements of said indicator are labeled in different types of styles. The Examiner contends this feature was old and well known in the art at the time of invention as taught by well known prior art.

The Examiner takes Official Notice that is was old and well known in the art at the time of invention that elements of an indicator could be labeled in different types of styles either to distinguish each element or for aesthetic purposes.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to require the system and indicator, taught by Johan, Hill, and Muthuswamy, that the elements of said indicator are labeled in different types of styles, as taught by well known prior art, to distinguish operating results of the performance enhancement to the wireless user.

As to **claim 25**, Johan and Hill teach everything as applied in claims 18 and Muthuswamy teaches everything as applied in claim 22, however, neither teach the elements of said indicator are labeled in different fonts. The Examiner contends this feature was old and well known in the art at the time of invention as taught by well known prior art.

The Examiner takes Official Notice that is was old and well known in the art at the time of invention that elements of an indicator could be labeled in different types of fonts either to distinguish differing information displayed on the display to the user or for aesthetic purposes.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to require the system and indicator, taught by Johan, Hill, and Muthuswamy, that the elements of said indicator are labeled in different types of fonts, as taught by well known prior art, to demonstrate to the wireless user the difference between the operating results of the performance enhancement.

As to **claim 26**, Johan and Hill teach everything as applied in claims 18 and Muthuswamy teaches everything as applied in claim 22, however, neither teach the elements of said indicator are separated by a marker. The Examiner contends this feature was old and well known in the art at the time of invention as taught by well known prior art.

The Examiner takes Official Notice that is was old and well known in the art at the time of invention that elements of an indicator could be separated by a marker to separate the results of differing computations.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to require the system and indicator, taught by Johan, Hill, and Muthuswamy, that the elements of said indicator are separated by a marker, as taught by well known prior art, to separate the operating results from testing the performance enhancement for ease of reading on the display by the wireless user.

As to **claim 29**, Johan and Hill teach everything as applied in claim 27 and Muthuswamy teaches everything as applied in claim 28; however, neither teach the elements of said indicator are labeled in different colors. The Examiner contends this feature was old and well known in the art at the time of invention as taught by well known prior art.

The Examiner takes Official Notice that it was old and well known in the art at the time of invention that elements of an indicator could be different colors either to distinguish each element or for aesthetic purposes.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to require the system and indicator, taught by Johan, Hill, and Muthuswamy, that the elements of said indicator are labeled in different colors, as taught by well known prior art, to differentiate comparison results to the user.

As to **claim 30**, Johan and Hill teach everything as applied in claims 27 and Muthuswamy teaches everything as applied in claim 28, however, neither teach the elements of said indicator are labeled in different types of styles. The Examiner contends this feature was old and well known in the art at the time of invention as taught by well known prior art.

The Examiner takes Official Notice that is was old and well known in the art at the time of invention that elements of an indicator could be labeled in different types of styles either to distinguish each element or for aesthetic purposes.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to require the system and indicator, taught by Johan, Hill, and Muthuswamy, that the elements of said indicator are labeled in different types of styles, as taught by well known prior art, to distinguish operating results of the performance enhancement to the wireless user.

As to **claim 31**, Johan and Hill teach everything as applied in claims 27 and Muthuswamy teaches everything as applied in claim 28, however, neither teach the elements of said indicator are labeled in different fonts. The Examiner contends this feature was old and well known in the art at the time of invention as taught by well known prior art.

The Examiner takes Official Notice that is was old and well known in the art at the time of invention that elements of an indicator could be labeled in different types of fonts either to distinguish differing information displayed on the display to the user or for aesthetic purposes.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to require the system and indicator, taught by Johan, Hill, and Muthuswamy, that the elements of said indicator are labeled in different types of fonts, as taught by well known prior art, to demonstrate to the wireless user the difference between the operating results of the performance enhancement.

As to **claim 32**, Johan and Hill teach everything as applied in claims 27 and Muthuswamy teaches everything as applied in claim 28, however, neither teach the elements of said indicator are separated by a marker. The Examiner contends this feature was old and well known in the art at the time of invention as taught by well known prior art.

The Examiner takes Official Notice that is was old and well known in the art at the time of invention that elements of an indicator could be separated by a marker to separate the results of differing computations.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to require the system and indicator, taught by Johan, Hill, and Muthuswamy, that the elements of said indicator are separated by a marker, as taught by well known prior art, to separate the operating results from testing the performance enhancement for ease of reading on the display by the wireless user.

Response to Arguments

5. Applicant's arguments with respect to claims 1-32 have been considered but are moot in view of the new ground(s) of rejection. Please review above rejection for detailed explanation.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Olivia Marsh whose telephone number is 571-272-7912. The examiner can normally be reached on 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha Banks-Harold can be reached on 571-272-7905. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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